

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

Claims 1-19 (canceled).

20. (new) A data processing method in a service system including a server apparatus, a client apparatus and a data processing relay apparatus for relaying data between the server apparatus and the client apparatus, comprising:

a first step of providing the data processing relay apparatus with a data processing unit for processing data in accordance with a data processing instruction which indicates how to process the data;

a second step of receiving a data request from the client apparatus to the server apparatus by the data processing relay apparatus;

a third step of sending the received data request to the server apparatus by the data processing relay apparatus;

a fourth step of receiving, by the data processing relay apparatus, an extended data, which the server apparatus sends to the data processing relay apparatus in response to the data request, including the data requested in the data request and data processing control information including at least one the data processing instruction indicating how to process the data;

a fifth step of storing the received extended data by the data processing relay apparatus;

a sixth step of extracting the data processing instruction from the data processing control information included in the extended data by the data processing unit of the data processing relay apparatus;

a seventh step of processing the received data in accordance with the extracted data processing instruction by the data processing unit;

a eighth step of repeating the sixth step and the seventh step until completing to process in according to all data processing instructions in the data processing control information by the data processing unit; and

a ninth step of sending, by the data processing relay apparatus, the data processed by the data processing unit to the client apparatus.

21. (new) The data processing method in accordance with claim 20, further comprising:

a tenth step of receiving, by the data processing relay apparatus, an other data request from the client apparatus to the server apparatus;

a eleventh step of comparing data requested by the other data request with the data stored in the data processing relay apparatus and sending the other data request to the server in case that both data does not coincide by the data processing relay apparatus;

a twelfth step of processing the data stored in the data processing relay apparatus in accordance with the data processing control information included in the stored extended data including the data by the data processing unit in case that both data coincide with each other in the eleventh step; and

a thirteenth step of sending, by the data processing relay apparatus, the data processed in the twelfth step to the client apparatus which has send the other data request as a response to the other data request.

22. (new) A data processing method in a service system including a server apparatus, a client apparatus and a data processing relay apparatus for relaying data communication between the server apparatus and the client apparatus, comprising:

a first step of providing the data processing relay apparatus with a data processing unit for processing data in accordance with a data processing instruction which indicates how to process the data;

a second step of receiving a data request from the client apparatus to the server apparatus by the data processing relay apparatus;

a third step of sending the received data request to the server apparatus by the data processing relay apparatus;

a fourth step of sending, by the server apparatus, to the data processing relay apparatus, in response to the data request received from the data processing relay apparatus, an extended data including the data requested in the data request and data processing control information including at least one the data processing instruction indicating how to process the data;

a fifth step of receiving the extended data by the data processing relay apparatus;

a sixth step of storing the received extended data by the data processing relay apparatus;

a seventh step of extracting the data processing instruction from the data processing control information included in the extended data by the data processing unit of the data processing relay apparatus;

an eighth step of processing the received data in accordance with the extracted data processing instruction by the data processing unit;

a ninth step of repeating the seventh step and the eighth step until completing to process in according to all data processing instructions in the data processing control information by the data processing unit; and

a tenth step of sending, by the data processing relay apparatus, the data processed by the data processing unit to the client apparatus.

23. (new) The data processing method in accordance with claim 22, further comprising:

a eleventh step of receiving, by the data processing relay apparatus, an other data request from the client apparatus to the server apparatus;

a twelfth step of comparing data requested by the other data request with the data stored in the data processing relay apparatus and sending the other data request to the server in case that both data does not coincide by the data processing relay apparatus;

a thirteenth step of processing the data stored in the data processing relay apparatus in accordance with the data processing control information included in the stored extended data including the data by the data processing unit in case that both data coincide with each other in the twelfth step; and

a fourteenth step of sending, by the data processing relay apparatus, the data processed in the thirteenth step to the client apparatus which has send the other data request as a response to the other data request.

24. (new) The data processing method in accordance with claim 22, wherein the service system includes a user management server connected to the data processing relay apparatus through a communication line,

wherein the second step is the step of receiving, by the data processing relay apparatus, the data request including first user authentication information added by the client apparatus,

wherein the third step is the step of sending, by the data processing relay apparatus, the data request including the first user authentication information to the server apparatus,

wherein the fourth step is the step of sending, by the server apparatus, the extended data including the data processing control information with a user individual control information to the data processing relay apparatus, in response to the data request including the first user authentication information, and

wherein the data processing method further comprises:

a fifteenth step of authenticating, by the data processing relay apparatus, a user of the client apparatus using user management information stored in the user management server and the received first user authentication information, the user management information including second user authentication information for authenticating the user of the client

apparatus, and group information indicating which group the user belongs to;
and

a sixteenth step of processing data, by the data processing unit, the data according to the user individual control information and the authentication result performed in the fifteenth step.

25. (new) The data processing method in accordance with claim 24, wherein the fourth step is the step of sending, by the server apparatus, the extended data added with the information identifying the user, the extended data including the data processing control information including the data processing instruction indicating a charging process for the requested data, and

wherein the data processing method further comprises:

a seventeenth step of charging the authenticated user for the requested data.

26. (new) The data processing method in accordance with claim 25, wherein the data processing instruction indicating the charging process is information indicating range of charging,

wherein the seventeenth step is the step of charging using the range of charging.

27. (new) The data processing method in accordance with claim 22, further comprising:

a eleventh step of sending, by the server apparatus, the extended data including the data processing control information including the data processing instruction indicating to replace at least a part of the data requested by the data request with replacement data or insert insertion data into the data to the data processing relay apparatus; and

a twelfth step of replacing, by the data processing unit, the part of the data with the replacement data or inserting the insertion data to the data in accordance with the data processing instruction in the data processing control information sent in the eleventh step.

28. (new) The data processing method in accordance with claim 27, wherein the service system further includes a server information server which is connected to the data processing relay apparatus and stores the replacement or insertion data and attribute information on the user to which the data is directed with linking to each other, and

wherein the data processing method further comprises:

a thirteenth step of receiving, by the data processing relay apparatus, the data request having user identifying information sent by the client apparatus; and

a fourteenth step of storing the user identifying information received by the data processing relay apparatus and the user attribute information linking to each other in the data information server, and

wherein the twelfth step is the step of referring, by the data processing unit, to the data information server in response to the data processing instruction, obtaining the user attribute information corresponding to the

received user identifying information, selecting the replacement or insertion data corresponding to the user attribute information, and performing the replacement or insertion on the data requested by the data request.

29. (new) A data processing relay apparatus for use in a service system including a server apparatus, a client apparatus and said data processing relay apparatus which relays data between the server apparatus and the client apparatus, said data processing relay apparatus comprising:

a data processing unit for processing data in accordance with a data processing instruction which indicates how to process the data; and

a storage for storing data supplied by said data processing unit,

wherein said data processing unit receives a data request from the client apparatus to the server apparatus, sends the received data request to the server apparatus by the data processing relay apparatus, receives an extended data, which the server apparatus sends in response to the data request, including the data requested in the data request and data processing control information including at least one the data processing instruction indicating how to process the data, and stores the received extended data in said storage,

wherein said data processing unit further extracts the data processing instruction from the data processing control information included in the extended data, processes the received data in accordance with the extracted data processing instruction by the data processing unit, repeats the extracting and processing functions until completing to process in according to all data

processing instructions in the data processing control information by the data processing unit, and sends the data processed to the client apparatus.

30. (new) The data processing relay apparatus in accordance with claim 29, wherein said data processing unit receives another data request from the client apparatus to the server apparatus, compares data requested by the other data request with the data stored in the data processing relay apparatus and sends the other data request to the server in case that both data does not coincide by the data processing relay apparatus, processes the data stored in the storage in accordance with the data processing control information included in the stored extended data including the data in case that both data coincide with each other in the eleventh step, and sends the data processed to the client apparatus which has sent the other data request as a response to the other data request.